

The background is an aerial photograph of a landscape, likely a wetland or coastal area. It features a complex network of waterways and land parcels. A prominent blue line, possibly a river or canal, runs vertically through the center. Other smaller blue lines branch out from this main line. The land areas are colored in shades of red and white, with some yellowish-brown patches. The overall pattern is highly irregular and organic.

ENVI Ecosystem

Cherie Tyrrell

Asia Pacific & Latin America Regional Manager

NV5 Geospatial

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NV5 provides solutions that help clients develop and deliver cost-effective, sustainable projects to improve lives.



\$ 1B+
Revenue

100+
Offices
Worldwide

5K+
Employees

12K+
Clients

22 ENR Top
500 Design
Firms (2024)

One of the largest geospatial consultancies in the U.S. and one of the world's leading providers of geospatial solutions, services and software.

Industry-Focused Solutions



The ENVI Ecosystem enables critical decision-making when, and where, it matters most

**Climate
Science**



**Disaster
Management**

**Precision
Agriculture**



**Federal and Civil
Government**

**Transportation
and Utilities**



**Defense,
Intelligence, and
National Security**

Academia



ENVI Ecosystem: Analytics Development



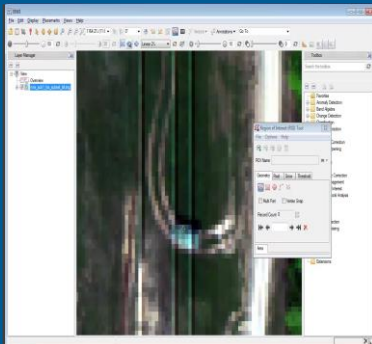
Develop and refine AI-driven analytics that transform sensor data into operational intelligence.

KEY CAPABILITIES



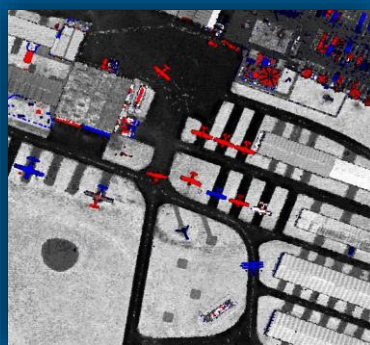
Feature Extraction

AI-powered object detection



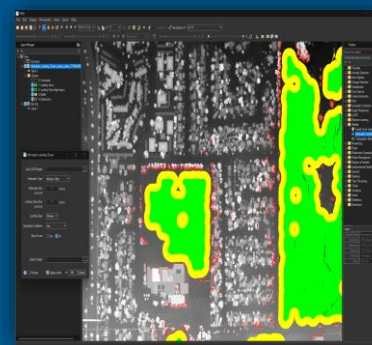
Target Detection

Identify threats through foliage



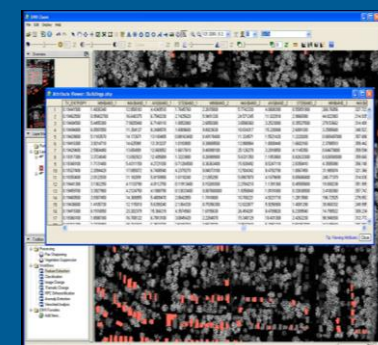
Change Detection

Track movement over time



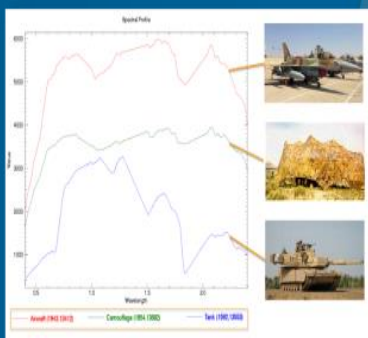
Terrain Analysis

Helicopter landing zones



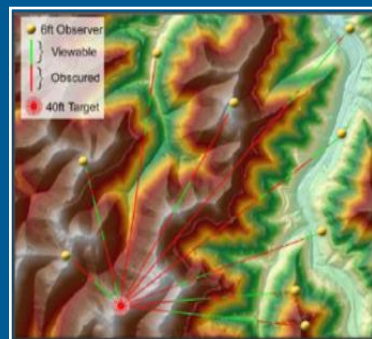
Building Detection

Monitor new development



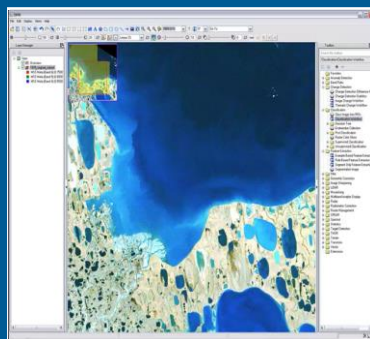
Material ID

Spectral detection from satellite



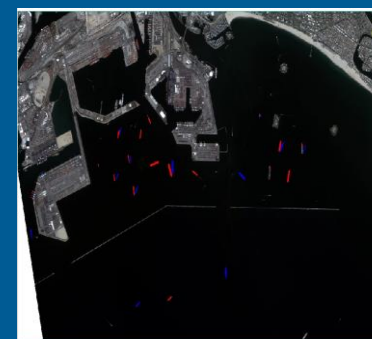
Line of Sight

Visibility & movement planning



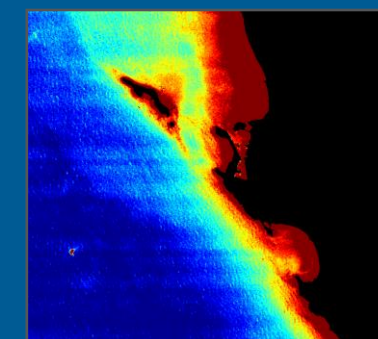
Land Classification

Scene-level land use mapping



Maritime Tracking

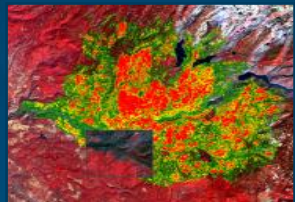
Ship detection & port analysis



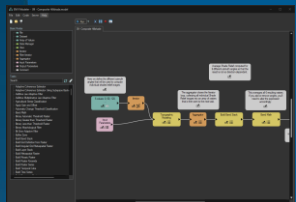
Bathymetry

Water depth & shoreline mapping

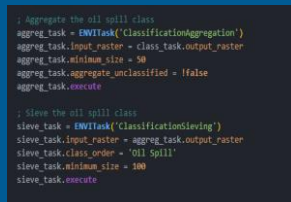
ENVI Ecosystem: Many tools available for analysis



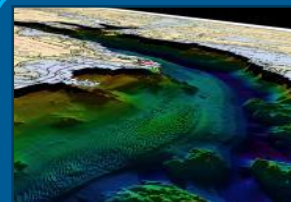
Spectral Analysis



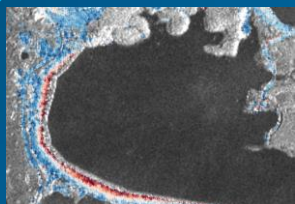
Agents for Automation



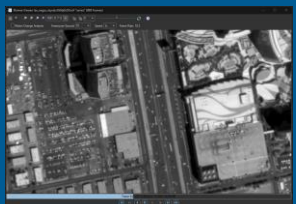
Extensibility



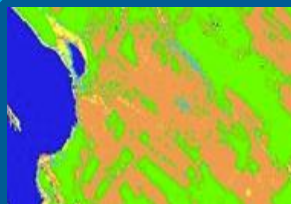
Atmospheric Correction



SAR Analysis



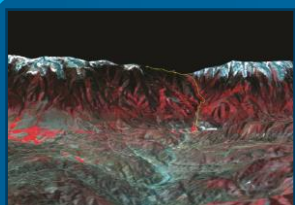
NITF



Machine Learning



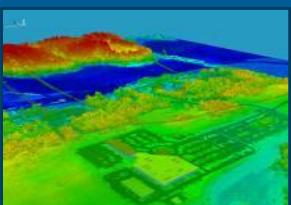
Deep Learning



DEM Extraction



Photogrammetry



Feature Extraction

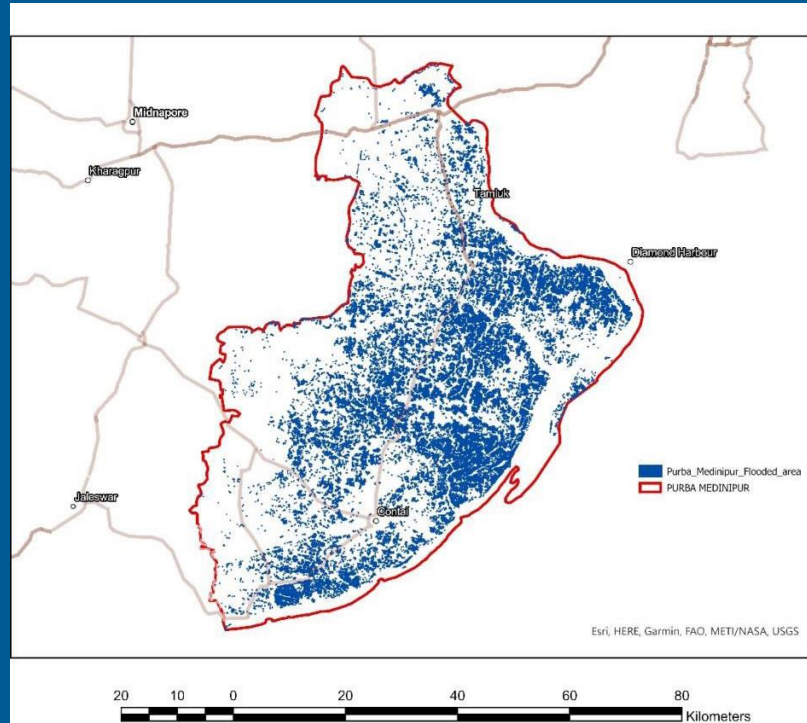
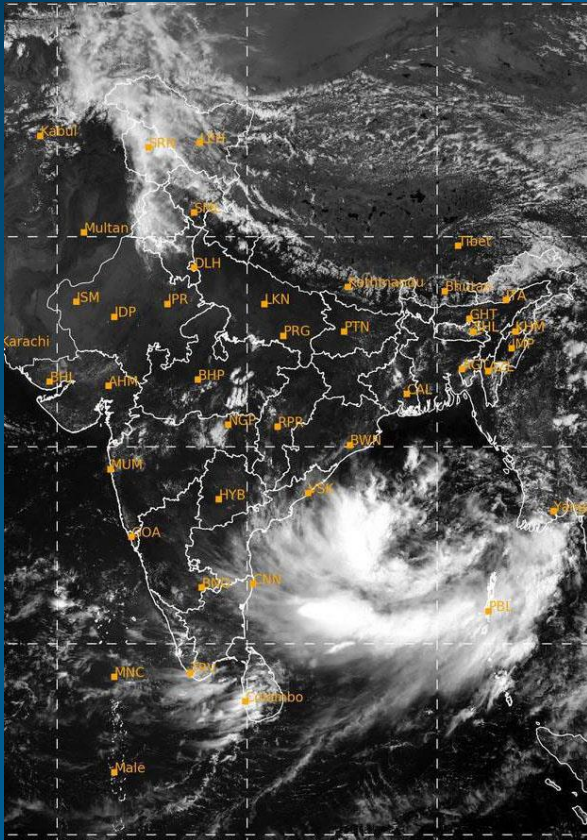


Crop Science

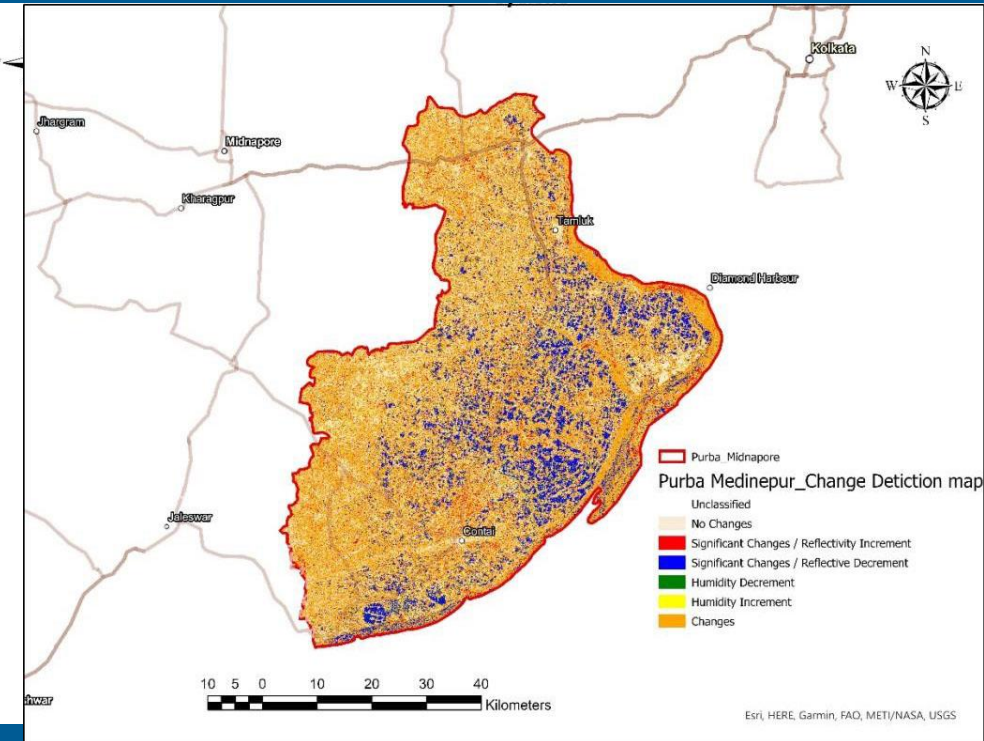
ENVI Ecosystem and analysis tools enables analysts to develop and refine geospatial analytics, AI models, and workflows that transform sensor data into operational intelligence.



Performing Flood Mapping After Cyclone Yaas



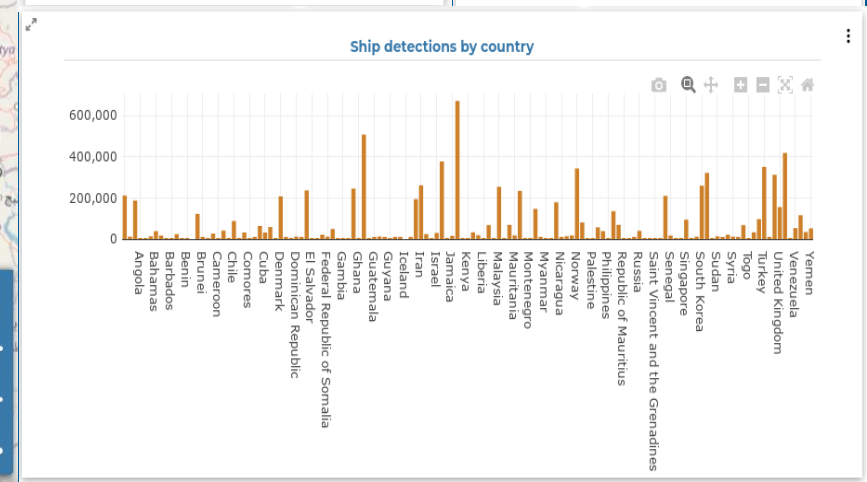
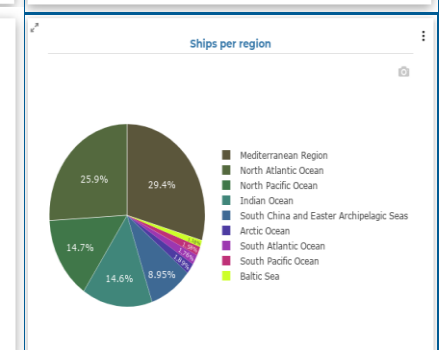
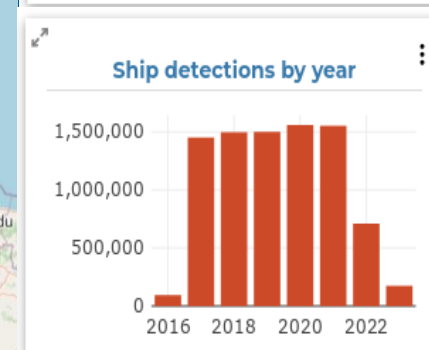
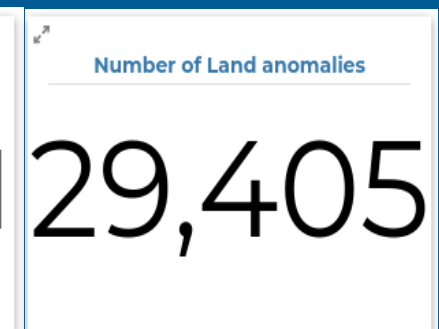
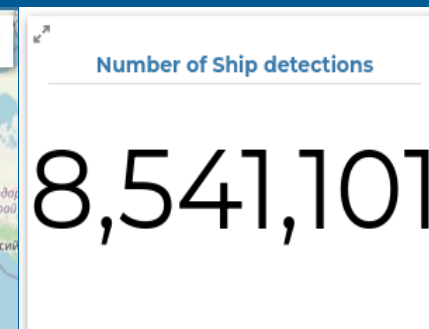
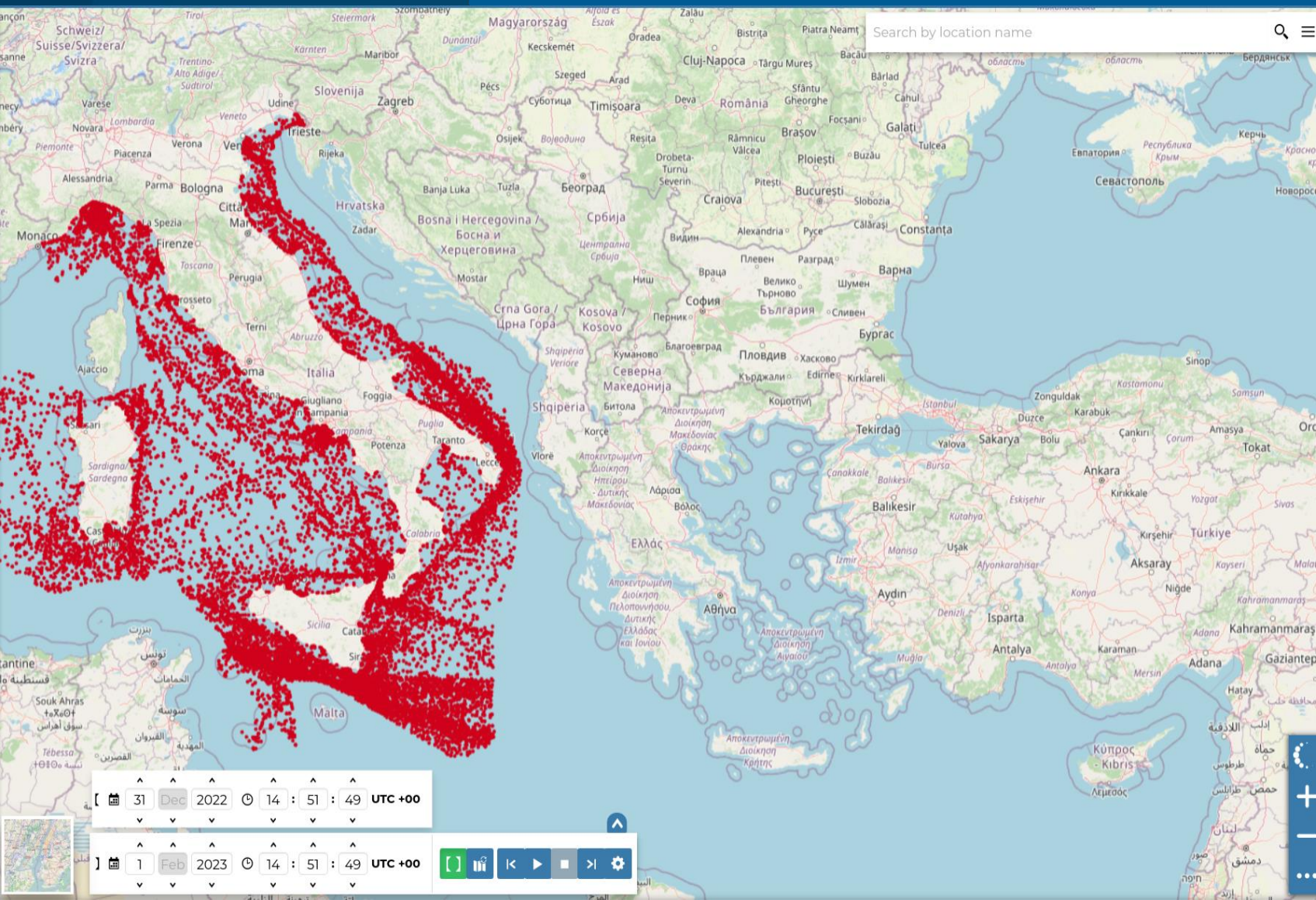
Purba Medinipur flood map



Purba Medinipur flooded area change detected regions

In May 2021, Cyclone Yaas hit the east coast of India with wind gusts up to 140 kilometers per hour (87 mph). It strengthened to the equivalent of a Category 1 Atlantic hurricane on May 23 and made landfall at Baleshwar on May 25 at peak intensity. The storm produced damaging storm surges, caused flooding and left tens of thousands of people homeless.

Maritime Monitoring



Importance of Rapid Cropland Classification





Organisation des Nations Unies
pour l'alimentation et l'agriculture

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Cartographie des projets WAW

Océan Indien

Argentine

Cambodge

Costa Rica

El Salvador

France

Indonésie

Japon

Madagascar

Malawi

Mali

Nicaragua

Japan

The challenges of a rapidly ageing rural population

The structure of Japan's agricultural sector and rural society are undergoing **radical transformation**. From 2005 to 2015, the number of farms decreased 30 percent to 1.4 million.

More than 70 percent of landowners are more than 60 years old and almost 10 percent of agricultural land has been abandoned. Certain agricultural operations, especially in unpopular areas, are struggling **due to a lack of labour** and it is becoming increasingly difficult to pass on farms to the next generation.



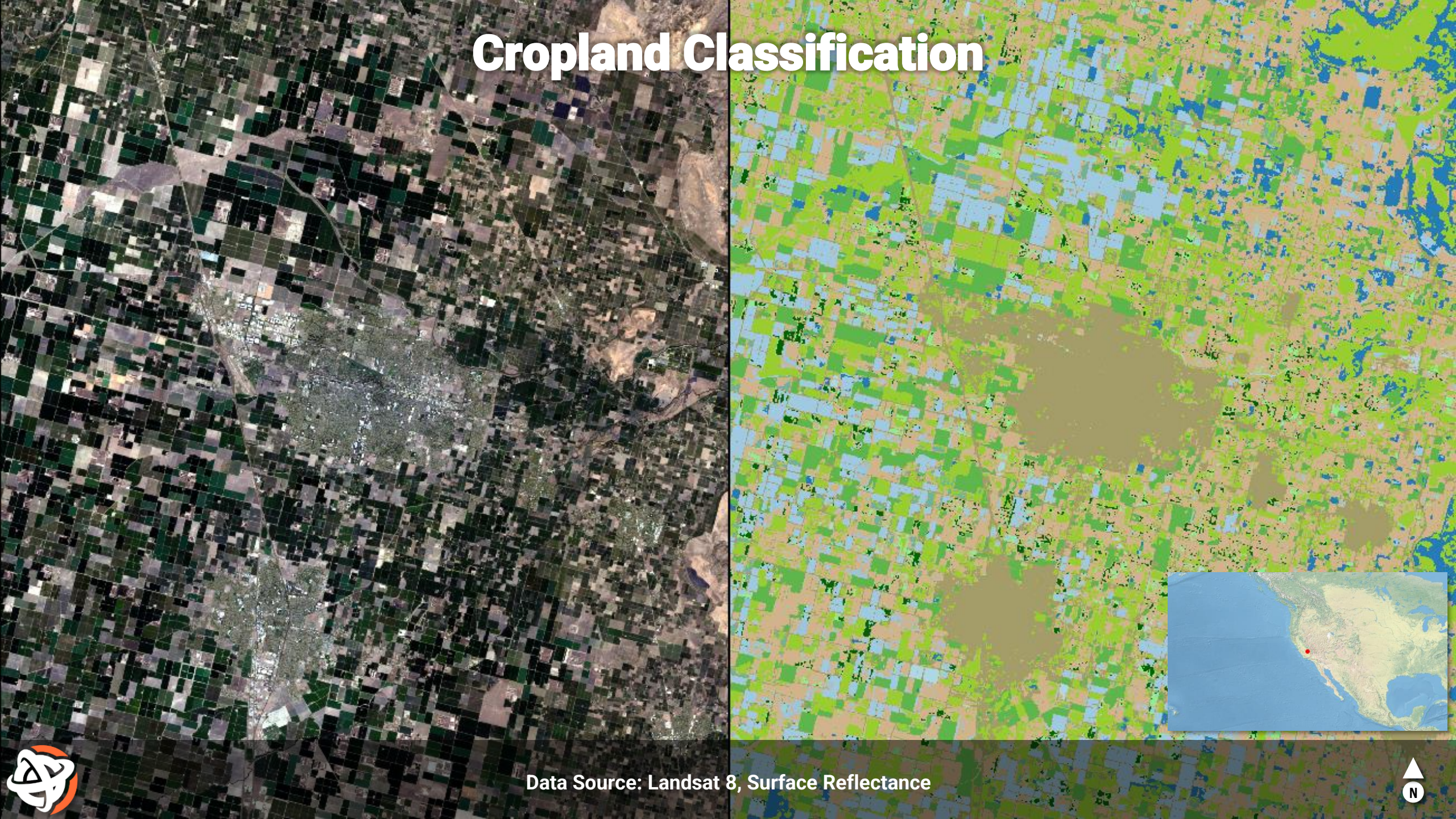
The decline of family farming is a huge problem

The decline of family farming and the rural economy is considered one of the most pressing political challenges of contemporary Japanese society.

To create public policies that will support agriculture and tackle the crisis in rural society, there **needs to be far-reaching political dialogue that is underpinned by accurate, comprehensive statistics**. The 2015 census provides an overall picture of the country's farm types, but data on a number of indicators, such as labour, farm acreage and farm sales, are not available.

- From 2005 to 2015, the number of farms decreased 30 percent to 1.4 million.
- Analyze cropland to support public policy, insurance sectors, and landowners

Cropland Classification



Data Source: Landsat 8, Surface Reflectance



Solar Panel Detection, Counting, and more



The Mainichi
Japan's National Daily Since 1922



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Insurance premiums for solar power surge in Japan amid series of disasters, thefts

September 9, 2025 (Mainichi Japan)

Japanese version



Damage to solar panels caused by 2019's 15th typhoon is seen in Chiba Prefecture in this file photo from October that year. (Mainichi)

TOKYO -- The cost of insurance premiums for solar power equipment has nearly doubled on average over the past five years, the Mainichi Shimbun has learned from major non-life insurance companies.

In some cases, premiums have increased nearly threefold. This rise is attributed to the increased payout of insurance claims due to damage from a series of natural disasters and theft, posing a challenge to the government's efforts to promote renewable energy as a global warming countermeasure.

The insurance companies covered by the Mainichi survey are Tokio Marine & Nichido Fire Insurance Co., Sampo Japan Insurance Inc., Mitsui Sumitomo Insurance Co. and Aioi Nissay Dowa Insurance Co. The findings reveal that the total amount of premiums paid by contracting businesses had

increased to an average of about 1.8 times the fiscal 2020 level by fiscal 2024. While



Data Source: RGB aerial imagery

Dam Ground Displacement Monitoring



Tailings Dam Monitoring

Filter by Confidence
Enter a number 0 -1

Filter Displacement Profile
Enter a Date Range

Select an AOI ID

Displacement (mm)

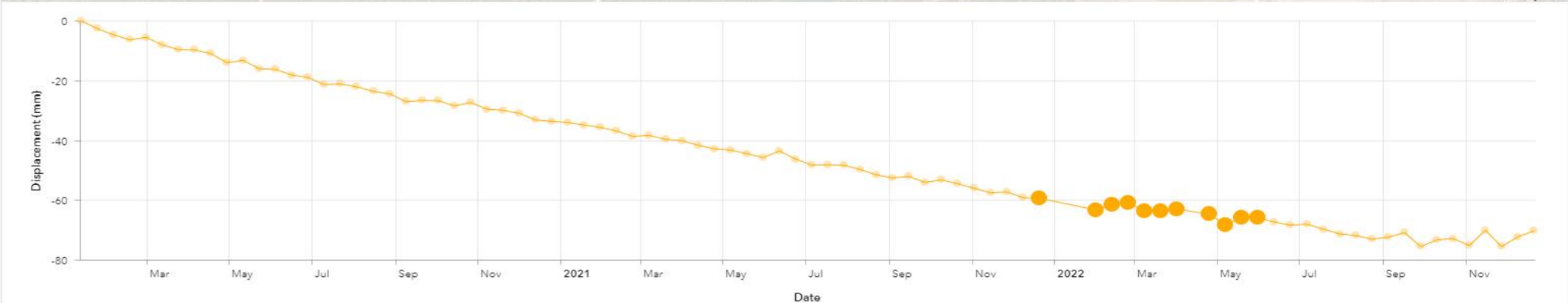
Minimum -68.20

Maximum -59.30

Average -63.60



Confidence
77.8%
High Confidence
>70%

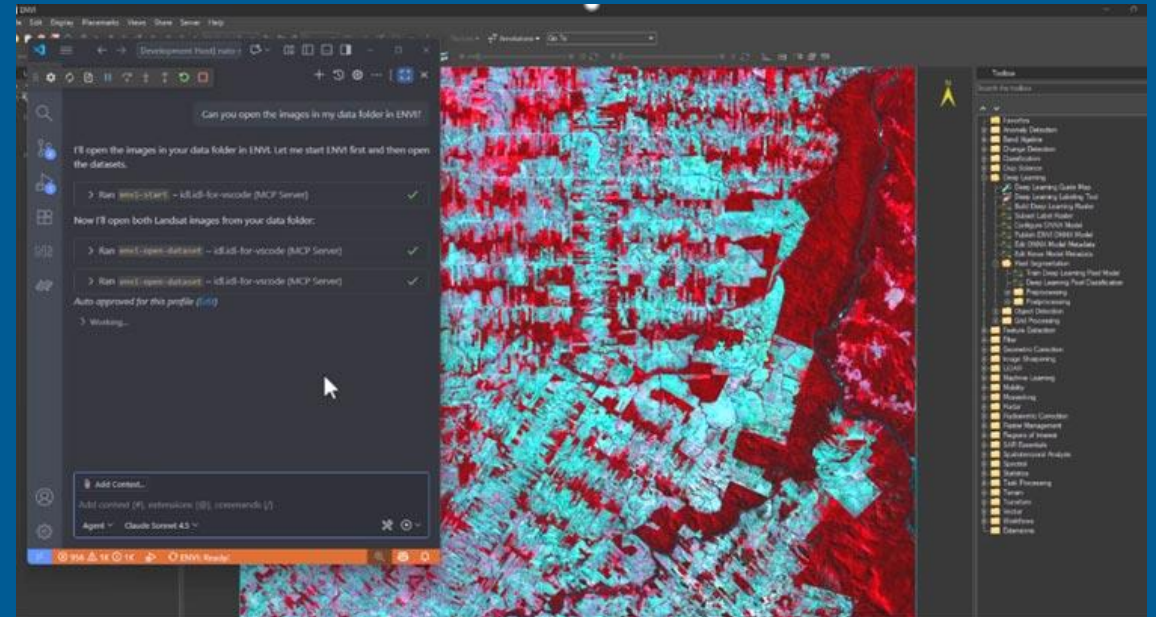


GeoAI Solutions

ENVI® Agent – AI powered workflow automation.

Simply tell ENVI Agent what you want to accomplish (e.g., change detection or landcover classification) in plain language, and it plans the workflow for you using ENVI or SARscape.

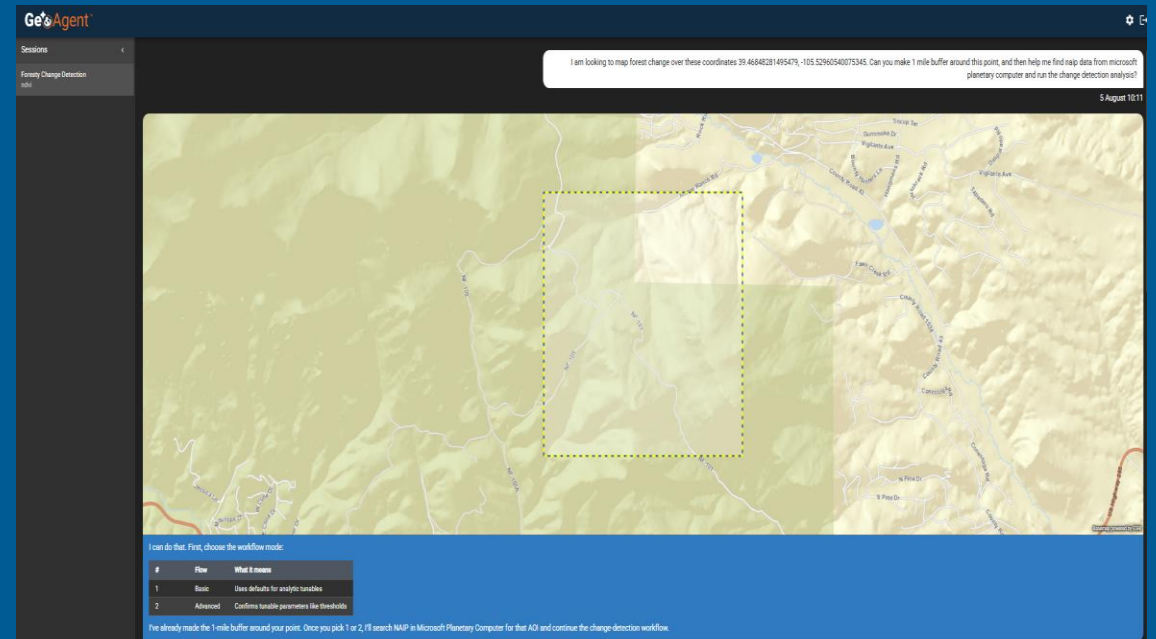
ENVI agent provides transparent logic with users reviewing processing steps before execution and reduces manual effort by calling ENVI's image processing tools directly, allowing you to focus on the results rather than task configuration.



GeoAgent™ – A hosted conversational Geospatial assistant.

GeoAgent takes the power of desktop ENVI and enables it in a hosted cloud.

GeoAgent comes configured with access to all of the data on Microsoft Planetary Computer (NAIP, Landsat, Sentinel, etc); access to all of ENVI's workflows like change detection, spectral analysis, vegetation analysis; and can be configured to push outputs directly into your GIS database.



Example Applications for GeoAI



Environmental & Agricultural



Mineral Exploration



Emergency Response



Defense and Security



Urban Planning



Infrastructure Monitoring

Example Applications for GeoAI



Environmental & Agricultural: *I want to understand crop trends across a region.*



Mineral Exploration: *I want to identify potential mining locations that contain a specific mine.*



Emergency Response: *Where is floodwater blocking evacuation routes?.*



Defense and Security: *We need to compare imagery before and after an event to identify damage .*



Urban Planning: *My team needs to evaluate land-use changes for a major project..*



Infrastructure Monitoring: *I need to understand new construction occurring near fiber cables.*



ENVI Agent



ENVI API

IDL Agent enables you to write and run code that interacts with ENVI, to create new tools and solve problems with a paired programmer

Image Analysis

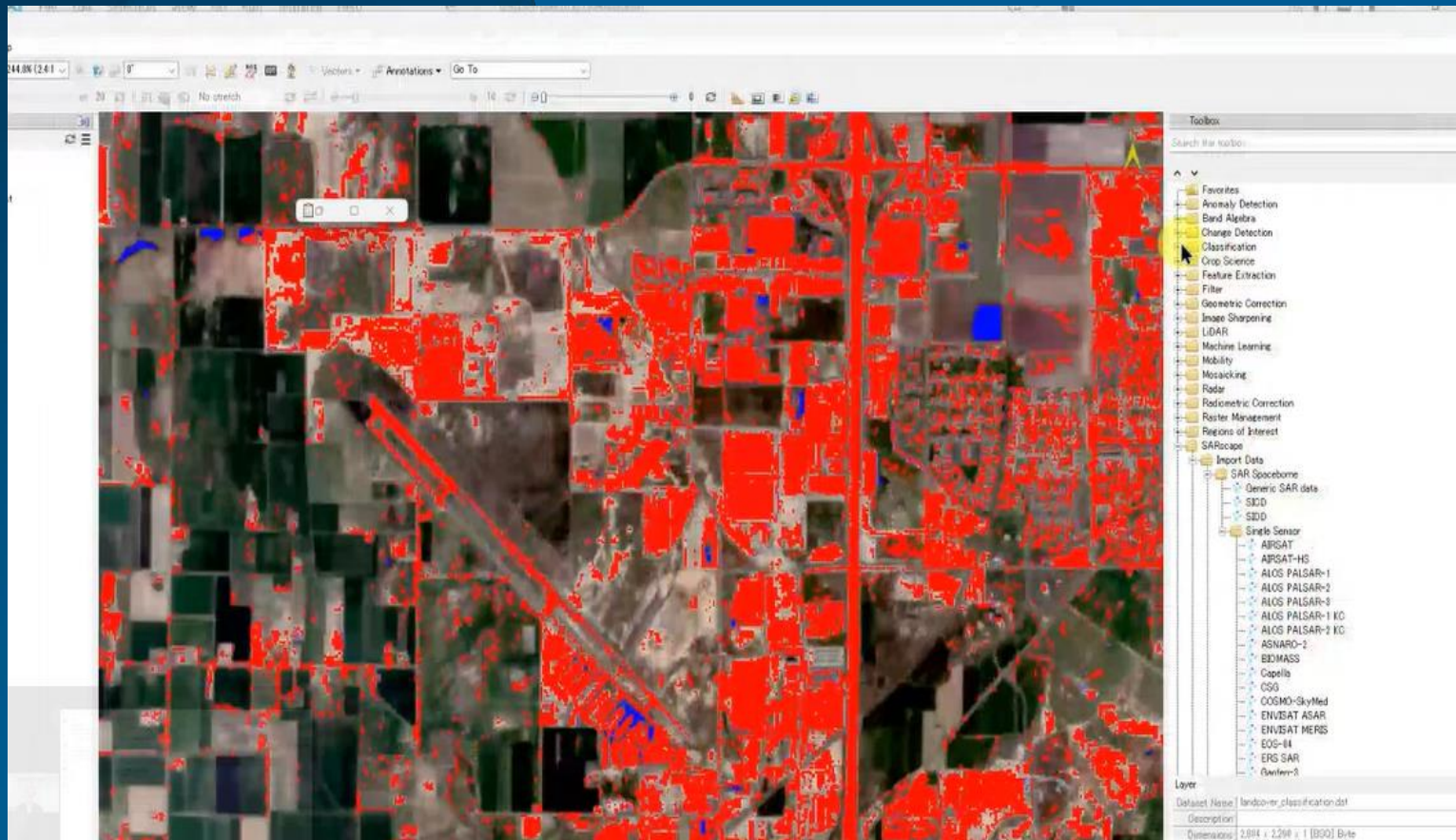
Full suite of ENVI's processing tools for processing all kinds of imagery datasets

SAR Expertise

Full suite of SARscape's processing tools, including specialized SAR workflows



ENVI Agent



Chat

+

⚙

...

🔄

✕

← ENVI起動方法

📄

ENVIを起動してください。

prompts.md@-12

以下にあるデータを開いてください。

C:\Users\ryohei_kamataka.EX2\Desktop\workForWebinar\input\landcover

このフォルダには画像とROIファイルがあります。

Completed 9 steps in 22s

(Sentinel-2画像)をENVIビューに表示しました。

- ROIファイル: samples.xml には7クラスのトレーニングサンプルが含まれています(ROI形式のためENVIビューへの直接ドラッグ表示はできませんが、機械学習ツールへの入力として利用可能です): Urban, Bare Earth, Cloud, Ice, Dense Veg, Sparse Veg, Water

続けて、この画像とROIを使ったランドカバー分類ワークフローの計画に進めますか?

🔊

🔄

📄

👍

🗨

> ☒ Load and query ROI file (3/3)

✕

+ prompts.md

Describe what to build

+ ☐ Agent

🔗 Claude Sonnet 5

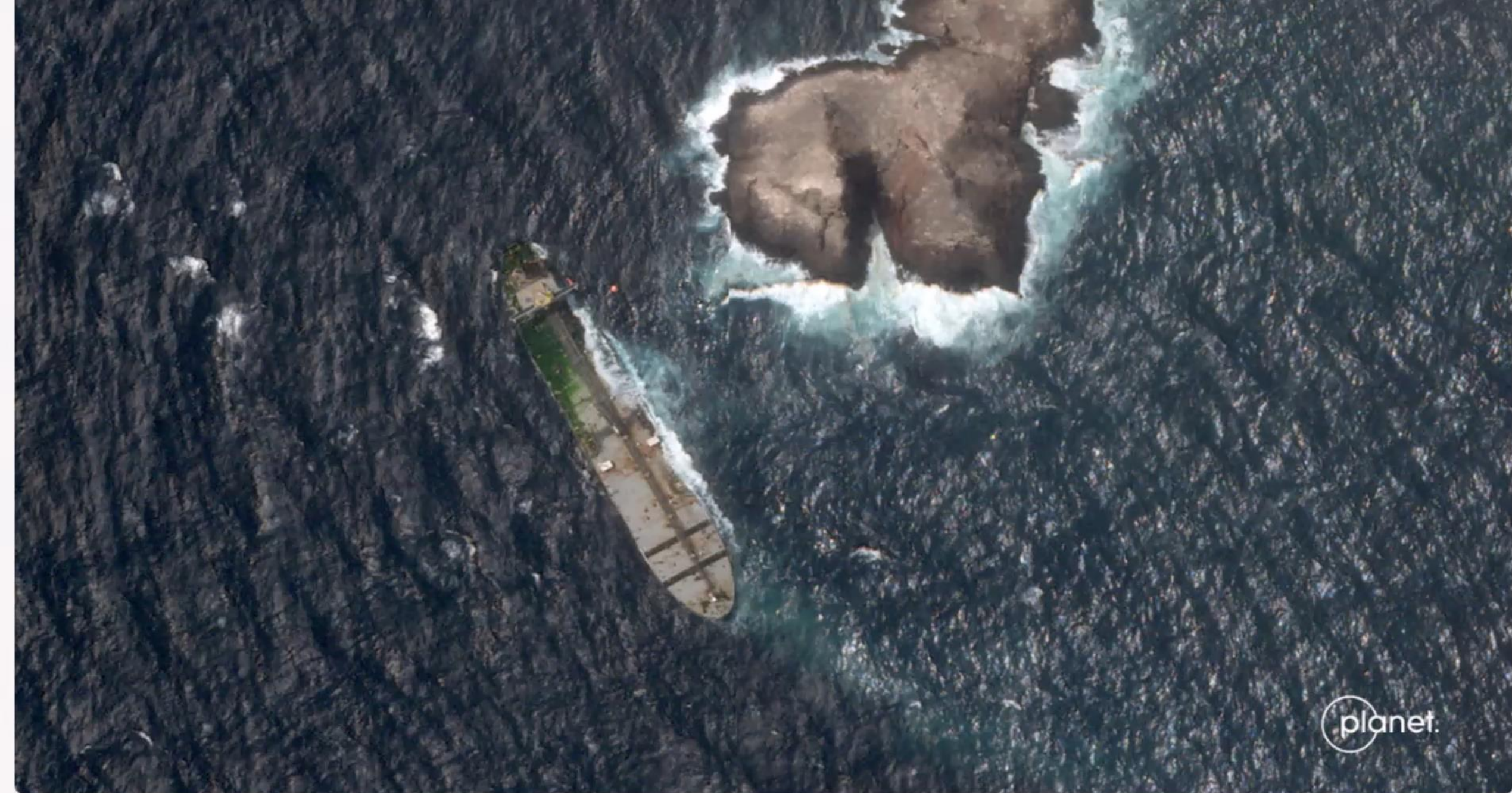
High 1M

⌵

📄 Local

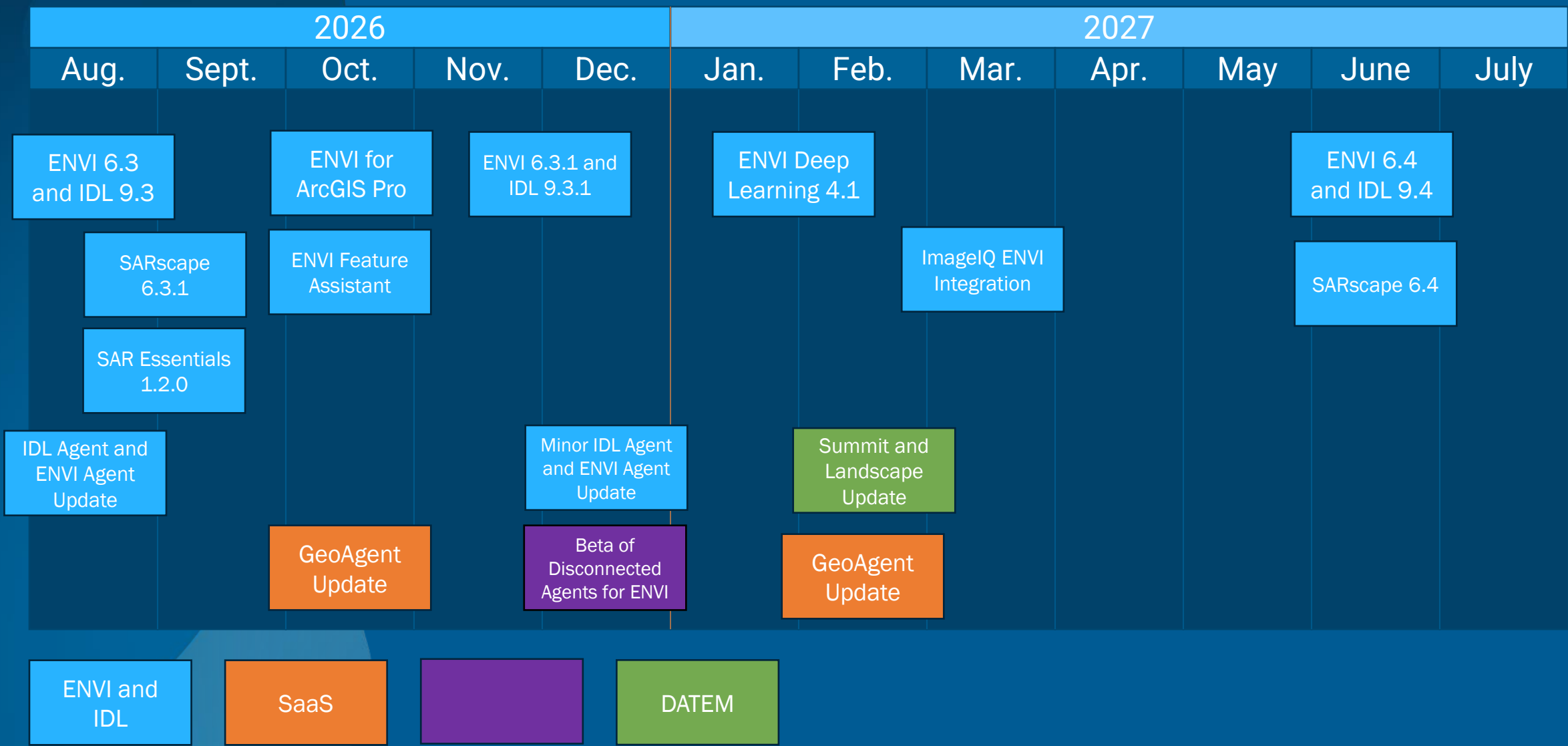
🔒 Default permissions

🔄



A satellite image shows the Caroline Bezenqi, a sanctioned vessel, appeared to be covered in a coat of algae, off the coast of the Dhofar Governorate, Oman, July 19, 2026.
2026 Planet Labs PBC/Handout via REUTERS — 2026 Planet Labs PBC

Next 12 Months



Thank You

Cherie Tyrrell

Asia Pacific Regional Manager

Cherie.Tyrrell@nv5.com

